

## DESIGN AND DEVELOPMENT OF INTELLIGENT TRANSPORTATION SYSTEM IN LAL CHOWK, SRINAGAR, JAMMU AND KASHMIR

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### ABSTRACT

*The increasing congestion and uneven motorist traffic which leads to the difficulties of daily commuters and riders is a growing problem in the area. It needs to be addressed in order to save time and expenses incurred by people. This paper provides insights on the previously stated methods and analyses them in order to find a suitable plan to be imposed and developed in the specified area. The designing id is done by taking into consideration the specific difficulties faced by people in travelling the area. It provides a plan which tries to overcome the difficulties thus trying to enhance the commuting. Various aspects regarding the occurrence of accidents, time wasted in traffic jams, pollution, security and environmental have been analysed that are forming hinderences to the development of the area.*

**KEYWORDS:** Intelligent Transport System, Traffic congestions, Traffic management, Srinagar, Artificial intelligence & Automated Framework

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### INTRODUCTION

An important factor which specifies economic growth of a country depends on the increasing growth in motor ownership. However, a large number of vehicle ownership tends to lead to traffic congestion. India has in last years seen a huge growth in vehicle population, thus leading to increase in traffic jams, and traffic blockages. With the increasing people population and the blockage that occurs due to the people walking in streets makes the condition worse.

Due to unplanned and non upgradation of roads and streets with the passage of time with other developments has made the problems worse. As visible from the various reports or a particular report of World Bank which states the loss of 5 Billion Dollars per year for India. This problem could have been corrected if a viable space was available in order to develop infrastructure. But lack of space for infrastructure thus leaves us with a sole option of developing an intelligent system of transportation which would fulfill the demands and minimize the problems faced by the people. Thus, there is a need to design and develop an alternative plan of action to reduce problems.

Intelligent Transportation Systems (ITS) has been used in many places in order to minimize the traffic problems. It has proven to be of great value in order to tackle the rising traffic congestion problems. The main work of ITS is to analyze gather and process the various information that needs to be assessed which include the traffic properties that will in turn help in reducing time, improve environment, increase the safety and comfort of people. Various technologies that have been developed in the transportation sector that can analyze the transportation behavior and the various surrounding factors influencing the behavior of driving sources are helping in the driving

and transportation aspects of the current and prevailing hectic conditions. When all this data is accumulated to be organized in a single module, this enables to process and develop a roadmap that is helpful in creating a transportation map for the people developing it and the users that use this information in order to drive safely and timely.

Knowing the fact that the first time ITS seemed to emerge as a topic in 1960s, a formal approach was made by a committee in 1994 to develop ITS for all sorts of transport and thus integrate them in order to make a viable design which would include all sorts of transport modes and increase driver safety and reducing the harmful impacts of the transport sector on the environment. Thus, the innovated proposal would help in reducing the carbon footprint and help in increasing the accessibility of the transportation sector. ITS combines all sorts of transportation modes such as road, rail, air, sea etc and various other components such as vehicles, infrastructure and communication methods in order to make a perfect and reliable mode of transportation. All sorts of nation on the basis of their geographical features and the socio economic and environmental backgrounds in order to design an interrelated mode of transportation for economic growth.

## STUDY AREA LOCATION

Lal Chowk in Srinagar lies at  $34.0698^{\circ}$  N,  $74.8090^{\circ}$  E in Northern India at 1585 meters above sea level on the banks of the Jhelum River, in north-western Jammu and Kashmir. The City of Srinagar has area of 294.16 sq.km (123.57 sq. mi).



Figure 1: Study Area Location.

According to the Bureau of Indian Standards, the town falls under seismic zone 5, which is in the scale of 2 to 5 (in order of increasing vulnerability to earthquakes). Srinagar city is governed by Municipal Corporation which comes under Srinagar Municipal Corporation. The location of study area with reference to India, State of Jammu and Kashmir and Lal Chowk (Srinagar City) is given in fig below:

## OBJECTIVES

The present work is aimed to study about the different research points related to studies of ITS. To study and analyze the different methodologies implemented by researchers in the field of ITS. Consequently, the objectives of the study are as follows:

- To understand the ITS and its application in state perspective.
- To study and understand the possibilities of effective implementation of ITS in Lal Chowk Srinagar covering an area of 9 sqkm.
- Identification of barriers of its implementation and try to overcome them

## METHODOLOGY

**Studying and understanding:** - To study and understand the various models proposed earlier for the implementation of Intelligent Transportation System.

**Develop and Design:** On the basis of study, develop a structure for the implementation of ITS by studying the characteristics of our roads and various environmental conditions.

**Barriers and overcomes:** After designing identify the barriers and try to minimize the hindrances.

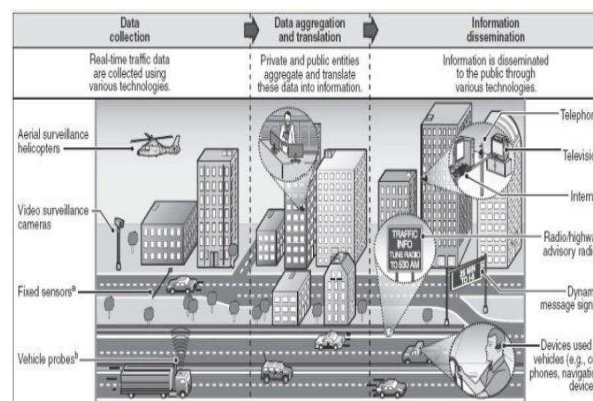
Further for the designing purpose the factors that will influence our Development of ITS are:

- Traveler Information
- Traffic Management and Operations
- Vehicles
- Freight Transport
- Public Transport
- Emergency
- Transport Related Electronic Payment

## RESULTS AND DISCUSSIONS

**Answer for Group 1:** This pack manages the passage the slat arrangement. Hence the anticipated retort for this horde is procedure of fittingly modified travel the executives skeleton, that implies by the help of Geographical Positioning Systems the condition of the congestion is identified and a way-out is determined for removal. Digitalizing and equidistant scheming the traffic skeleton will timely industrious and proficient portability flanking manageability to area.

**Answer for Group 2:** This pack manages nation state safety frame and medium errands, the anticipated react for this grouping is executing the secluded communication synchronize with the mediums and establishment by determining a "data repository framework" stipulation: this would consent to to remain every medium on trail, by giving every medium a fresh temperament watchfully. As a upshot contained by the sputter of eyes the vehicle confirmation would be on display. this outline would as well sanction to be on familiar terms with and discern the earlier period excursion of medium.



**Figure 2: How Real Time its Works**

**Answer for Group 3:** This pack administer medium to medium dexterity, the anticipated array is accomplishing the secluded correspondence systematize between the vehicles by consuming , various wireless modes that are available to transmit data, which would tend a way for mediums to be connected , and from now on smash into will be smear out.

#### **Technologies to be Implemented for Environmental Sustainability:**

When it comes to environment conservation, various transportation technologies which is must have to be adopted such as:

##### **Electronic Road Tolling**

This would help in reducing the time wasted in waiting, reduce congestion and in turn help in reducing fuel consumption.

##### **Advanced Driver Assistance**

This would help in increasing the safety of the driver and the vehicle and others driving in the surrounding. This system helps in providing the vehicle a emergency system that can calculate the probability of any risks.



**Figure 3: Site Location 1**



**Figure 4: Site Location 2**

#### **Human Machine Interface**

When human machine interface systems are working onboard, it provides with a better understanding between the machines and the drivers using the same interface.





**Figure 5: Site Location 3**

### Vehicle to Vehicle Coordination



**Figure 6: Site Location 4**

This would help in the better understanding between the vehicles and the infrastructure thus help in increasing the mobility and help surrounding.

### CONCLUSIONS

This necessarily adjoins to tightfisted nature from awe-inspiring vehicle infectivity and diminishing congest on metropolis piles. In the direction of the conclusion we believe that I.T.S. grasps a applicable announcement in giving us a civilized, safe jaunt. Intelligent transportation construction grips a noteworthy point in diminishing the ordinary community topics. There are moreover the remuneration and unhelpful inscription of convention of intelligent transportation system design. Intelligent transportation when employed competently it does ultimate employment of lane, traffic and tour in order, succession of travel and stowage the board, avenue welfare and refuge, synchronization of medium and scaffold, decreased tour occasion, prolonged effectiveness, and hereafter situation maintainability is proficient. At the side of such intrinsic worth there are equally downbeat marks of this scaffold. the scaffold. Disillusionment will on time general strike of the vehicular enlargement, medium and voyager in sequence defense is of momentous apprehension.

This should to be done unfalteringly streak tutoring open and contain bits of tittle-tattle is a mind-numbing chore.

The hastily intensifying medium laypeople in India, jabbed by the population flash and pecuniary upswing arranges a crucial influence on traffic the board in the municipal built-up locale and towns of the realm. While India has just ended an assault into crafty medium outline in organizing traffic, progressively more broad and sincere assimilation of drift situation modernization and dreams into usual interchange the slat is essential.

India's ITS can't be utterly verified on the in progress prolific ITS of unusual countries as of elemental shared,

geographic and versatile distinguished amid the realms. The contemporary dreams must be all in all grasped so as to rework the said to enhance the Indian interchange circumstances.

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